COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

PREFILED STAFF TESTIMONY

VIRGINIA ELECTRIC AND POWER COMPANY

For approval of a rate adjustment clause, designated Rider CCR, for the recovery of costs incurred to comply with § 10.1-1402.03 of the Code of Virginia, pursuant to Virginia Code § 56-585.1 A 5 e

Volume I of II

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PUR-2021-00045

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PART A

Summary of the Testimony of Katya Kuleshova

My testimony includes the following findings and recommendations:

1. Virginia Electric and Power Company's d/b/a Dominion Energy Virginia ("Company") proposed Rider CCR[1] revenue requirement for December 1, 2021 to November 30, 2022 ("Rate Year") is $216.087 million. The proposed revenue requirement includes two components. The first is the Projected Cost Recovery component of $216.087 million, which is intended to amortize projected balances of the deferred pre-rate adjustment clause costs and the projected monthly cash expenditures. The second is the Actual Cost True-Up Factor. Because this filing represents the initial request for cost recovery, no true-up is included in this proceeding.

2. Staff believes that the costs incurred to date for which the Company is seeking recovery were reasonably and prudently incurred.

3. Staff believes there may be opportunities to lower future compliance costs. Thus, Staff recommends that the Commission direct the Company to present a Class 2 study in the next Rider CCR proceeding in order to determine whether transporting CCR material by rail from the Bremo and/or Possum Point Power Stations to the Virginia City Hybrid Energy Center and placing it in Cell 2A/3B of the Curley Hollow Landfill may be a lower cost solution, considering all the necessary infrastructure investments.

4. Staff recommends that the Company consider an array of available technological options for each workstream before awarding significant contracts and include the respective feasibility and cost analyses in future annual Rider CCR filings.

5. Staff recommends that the Commission direct the Company to evaluate emerging beneficiation solutions on an ongoing basis and include the respective feasibility and cost analyses in future annual Rider CCR filings.

6. Staff recommends that the Commission require the Company to compile a report in which operational and financial milestones for each workstream for each pond would be tied together. Considering the complexity of the CCR Projects, Staff suggests that the Company provide certain financial and operational metrics every six months. Staff further recommends that these reporting requirements be subject to relief by the Director of the Commission's Division of Public Utility Regulation.

7. The Company's proposed Rider CCR costs are allocated on an energy basis using the Company's Factor 3 cost allocator. The Company's proposed Rider CCR charge is a non-bypassable uniform charge per kilowatt-hour applicable to all customers in the Virginia jurisdiction, irrespective of their generation supplier. Staff supports the Company's proposed cost allocation, revenue apportionment, and rate design methodology.

8. A residential customer using 1,000 kilowatt hours ("kWh") per month would see an average monthly bill increase of $2.94 from the Rider CCR charge for the Rate Year.

[1] Coal Combustion Residual

PREFILED TESTIMONY
OF
KATYA KULESHOVA

VIRGINIA ELECTRIC AND POWER COMPANY

CASE NO. PUR-2021-00045

Q1. PLEASE STATE YOUR NAME AND POSITION WITH THE STATE CORPORATION COMMISSION ("COMMISSION").

A1. My name is Katya Kuleshova. I am a Strategic Planning Specialist with the Commission's Division of Public Utility Regulation.

Q2. WHAT ARE YOUR PRESENT RESPONSIBILITIES?

A2. My duties as a Strategic Planning Specialist include reviewing utility rate adjustment applications, integrated resource plans, renewable portfolio standard filings, and generation certificate filings, as well as analyzing public utility rate increase applications regarding cost of service, rate design, and terms and conditions of service. I am also responsible for presenting testimony as a Staff witness and making alternative proposals to the Commission when appropriate.

Q3. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A3. My testimony addresses the Application of Virginia Electric and Power Company's d/b/a Dominion Energy Virginia ("Company" or "Dominion") filed pursuant to § 56-585.1 A 5 e of the Code of Virginia ("Code") for approval of a rate adjustment clause, designated Rider CCR ("Petition"). In its filing, the Company seeks to recover costs incurred to comply with state and federal environmental regulations applicable to generation facilities

that were previously used to serve the Company's native load obligations. Specifically, pursuant to Virginia Senate Bill 1355 ("SB 1355") codified as Va. Code §10.1-1402.03, the Company seeks to recover actual and projected cash expenditures for certain environmental projects involving coal combustion residual ("CCR" or "coal ash") removal.[2] My testimony covers the following areas: (i) an overview of key legislation that impacts remediation of CCR material within the Chesapeake Bay watershed; (ii) a description of the scope of work needed to comply with relevant regulations, and (iii) an analysis of strategic and tactical alternatives available to the Company. Additionally, I will discuss the Company's planning process and the long-term financial outlook of the CCR projects and will suggest a reporting mechanism. My testimony will close with the discussion of the cost allocation methodology proposed by the Company.

Q4. PLEASE IDENTIFY THE OTHER STAFF WITNESSES FILING TESTIMONY IN THIS PROCEEDING.

A4. Staff witness Sean M. Welsh will be providing testimony on the proposed revenue requirement for Rider CCR and the accounting and recovery of Rider CCR eligible costs.

Q5. PLEASE PROVIDE AN OVERVIEW OF THE COMPANY'S PETITION.

A5. The costs requested for recovery are for CCR removal projects from certain ash ponds and a landfill at the Company's Bremo Power Station, Chesterfield Power Station, Possum Point Power Station, and Chesapeake Energy Center (as applied to the Bremo, Chesterfield, and Possum Point Power Stations, and the Chesapeake Energy Center (collectively, the "Power Stations"); and as to the respective or collective CCR projects at those Power

[2] Petition at 4.

Stations, (the "CCR Projects" or "Projects").[3] According to the Company, the Projects are needed to comply with SB 1355, "which requires the Company to remove all CCR from the current pond storage locations at these Power Stations and either beneficially reuse it or move it to a qualified landfill (onsite or offsite)."[4]

Prior to enactment of SB 1355 in 2019, the Company planned to cap and close in place the CCR storage facilities at each Power Station, consistent with federal and state regulations.[5] These regulations include the United States Environmental Protection Agency's ("EPA") "Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule,"[6] which was incorporated by reference in Virginia's Solid Waste Management Regulations ("SWMR") by the Virginia Waste Management Board on December 28, 2015.[7]

Q6. PLEASE PROVIDE AN OVERVIEW OF RIDER CCR.

A6. The total revenue requirement requested for recovery from the Company's Virginia Jurisdictional customers for the Rate Year beginning December 1, 2021 through November 30. 2022 ("Rate Year") is $216.087 million, including financing costs.[8] The Company began accruing these costs in July 2019, as permitted by SB 1355, which include all cash-based expenditures associated with CCR removal activities at the Power Stations prior to the initial Rate Year and projected during the Rate Year.[9] The two key components of the proposed total revenue requirement are the Projected Cost Recovery Factor of $216.087

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[3] *Id.*
[4] Direct Testimony of Brandon E. Stites ("Stites Direct") at 5.
[5] Stites Direct at 4.
[6] 80 Fed. Reg. 20,301 (Apr. 17, 2015) (codified at 40 C.F.R. Part 257) ("CCR Rule").
[7] (9 VAC 20-81-800 to -820).
[8] Supplemental Direct Testimony of Jared R. Robertson at 2. This is an amended revenue requirement, which is $59,000 lower than the noticed amount of $216.146 million in the Petition.
[9] Direct Testimony of Jared R. Robertson at 4-5.

million and the Actual Cost True-Up Factor. Although no Actual Cost True-Up Factor is being requested in this initial Rider CCR case, it is anticipated that any true-up for calendar year 2021 will be included in a 2022 update filing for implementation during a December 1, 2023 - November 30, 2024 rate year.[10] The total estimated cost for the Projects is $2.716 billion, excluding financing costs.[11]

The Company proposes the Factor 3 cost allocation methodology for the Virginia jurisdiction[12] and a non-bypassable uniform charge per kilowatt-hour from all customers in the Virginia jurisdiction, irrespective of their generation supplier.[13] Such approach for allocating costs associated with closure of a CCR unit is consistent with subsection H (iv) of §10.1-1402.03 of the Code of Virginia, which states that "any such costs shall be allocated to all customers of the utility in the Commonwealth as a non-bypassable charge, irrespective of the generation supplier of any such customer."

OVERVIEW OF LEGISLATION IMPACT ON REMEDIATION OF CCR MATERIAL WITHIN THE CHESAPEAKE BAY WATERSHED

Q7. PLEASE IDENTIFY THE MAJOR LEGISLATIVE ACTS THAT HAVE A BEARING ON THE PROPOSED CCR PROJECTS.

A7. There have been six federal and state laws that specifically impact handling of CCR material. These are:

- CCR Rule

[10] Petition at 6. It is Staff's understanding from conversations with the Company that any true-up for 2021 calendar year will be included in a 2022 update filing for implementation during the rate year of December 1, 2022 - November 30, 2023, and that the Company will note this correction in rebuttal or at the hearing.
[11] Stites Direct at 2.
[12] Direct Testimony of Paul B. Haynes ("Haynes Direct") at 4-6.
[13] Haynes Direct at 6.

- Clean Water Act
- Virginia Senate Bill 1398 ("SB 1398")
- Virginia Senate Bill 807 ("SB 807")
- SB 1355
- Rule 258 Criteria[14]

Additionally, the 2020 Environmental Justice Act (Virginia Senate Bill 406) is relevant to all businesses and state agencies in Virginia.

Q8. WHAT LEGISLATION REQUIRED THE COMPANY TO CLOSE CCR UNITS?

A8. Section 257.101(a)(1) of the CCR Rule directs owners of unlined CCR ponds[15] to cease placing CCR into such ponds as soon as technically feasible, but not later than April 11, 2021.[16] Once a pond receives the final known receipt of CCR, its closure must commence within 30 days, unless its owner plans to beneficiate the CCR (in which case two-year extensions may apply).[17] Ponds larger than 40 acres may have up to 15 years to complete the closure.[18] Except for the Chesapeake Bottom Ash Pond, each pond included in Rider CCR is larger than 40 acres.[19]

[14] EPA's "Criteria 18 for Municipal Solid Waste Landfills" (codified at 40 C.F.R. Part 258).
[15] According to Liner Documentation for each pond posted on the Company's website, all of the Company's CCR ponds at the four Power Stations are unlined or their liner does not meet the requirements of § 257.71 of the CCR Rule.
[16] Unless the ponds meet all the criteria for ponds eligible for extended closure deadline (October 15, 2024), which include: (1) compliance with location restrictions specified under §§ 257.60 through 257.64; (2) periodic safety factor assessment requirements under § 257.73(e) and (f); and (3) groundwater protection standard defined under § 257.95(h).
[17] *See* § 257.102(e)(1) of the CCR Rule.
[18] A five-year standard closure timeframe and up to five two-year extensions. *See* § 257.102 (f)(2)(ii)(B) of the CCR Rule.
[19] According to Closure Plans for each pond posted on the Company's website.

The CCR Rule includes detailed requirements for both existing and new CCR ponds and landfills.[20] Compliance data must be made publicly available in a website titled "CCR Rule Compliance Data and Information." The Company regularly posts required engineering assessments, reports, and official notifications.[21]

Existing CCR ponds are subject to hazard potential classification assessment required under § 257.73(a)(2) of the CCR Rule. All CCR ponds at the Power Stations were classified as significant hazard,[22] which means their "failure or mis-operation results in no probable loss of human life, but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns."[23] Such ponds must have an inflow design flood control system that must adequately manage flows into and from the CCR unit resulting from a 1,000-year flood.[24] Inflow Design Control Plans of CCR ponds at the Power Stations show that each pond has a system capable of adequately managing the inflow from the 1,000-year flood event without overtopping the embankment. However, to comply with more stringent regulations in Virginia that will be discussed later, the Company invested in water treatment, water management, and compliance monitoring and testing projects at Chesterfield and Bremo Power Stations. The costs for these projects were approved for recovery through Rider E.[25]

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[20] Attachment KK-1 is a summary that links each requirement with a corresponding subsection of the CCR Rule as of 2015.

[21] https://www.dominionenergy.com/projects-and-facilities/electric-projects/coal-ash/ccr-rule-compliance-data-and-information

[22] According to Hazard Potential Assessment for each pond posted on the Company's website.

[23] § 257.53 of the CCR Rule.

[24] § 257.73 and § 257.82 of the CCR Rule.

[25] These projects and relevant contracts are described in the Company's responses to interrogatories in Case No. PUR-2020-00003. *See Virginia Electric and Power Company, For revision of rate adjustment clause: Rider E, for the recovery of costs incurred to comply with state and federal environmental regulations pursuant to § 56-585.1 A 5 e of the Code of Virginia*, Case No. PUR-2020-00003, Doc. Con. Cen. No. 200910088, Final Order (Sept. 4, 2020) ("2020 Rider E case"). At the Chesterfield Power Station, Proact Services Corp. installed and operated a temporary water treatment system; Golder Associates, Inc. monitored and tested the treated water; Charah, Inc. was contracted to grade ash and place liner over it to eliminate stormwater contact with ash (The Interim Water Management Plan).

According to Company witness Messinger, the CCR Rule provides two closure options of CCR units — (1) cap-in-place and (2) closure by removal and subsequent disposal of the ash in a permitted lined CCR landfill or for beneficial reuse (recycling).[26] The Company includes dewatering of the ash in either scenario. However, statutory language in the CCR Rule is not the same for the two suggested closure options. For the cap-in-place option, "Free liquids must be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residues."[27] Alternatively, "An owner or operator may elect to close a CCR unit by removing and decontaminating all areas affected by releases from the CCR unit."[28] Dewatering of the ash is not an explicit requirement in this scenario, but contact water cannot be left untreated because pond owners must comply with the groundwater protection standard established pursuant to § 257.95(h) of the CCR Rule.

Inactive ponds that have not been receiving CCR or sending it out for beneficiation must be closed within two years after the last occurrence of either event.[29] Further, if a pond does not meet the periodic safety factor assessment requirements under § 257.73(e) and (f), its closure must be initiated within six months. Finally, for ponds smaller than 40 acres, only one two-year extension of the standard five-year term is allowed.[30] Two or more of these factors apply to each of the four CCR ponds that the Company has already closed by removal.[31] CCR material from these ponds has been consolidated in the largest

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See Attachments KK-2 and KK-3 for copies of the Company's responses to Interrogatory Nos. AG 2-42 and Staff 8-51 in Case No. PUR-2020-00003.

[26] Direct Testimony of Lisa C. Messinger ("Messinger Direct") at 3.

[27] § 257.102(d)(2)(i) of the CCR Rule.

[28] § 257.102(c) of the CCR Rule.

[29] § 257.102(e)(2)(i) of the CCR Rule.

[30] § 257.102 (f)(2)(ii)(A) of the CCR Rule.

[31] These are the East and West Ash Ponds at the Bremo Power Station, and Ponds ABC and E at the Possum Point Power Station. Notifications of Intent to Close for each of the four ponds state the ponds' inactivity as the reason for

ponds at the Bremo and Possum Point Power Stations. These costs are not requested for recovery in Rider CCR, except for the final clean-up of the West Ash Pond at the Bremo Power Station.

The Company had originally planned to close the ponds included in Rider CCR by leaving CCR material in place and installing impervious cover systems. Closure Plans posted on the Company's website are dated December 2015 for ponds at the Bremo, Chesapeake, and Possum Point Power Stations. Also, in January 2016, the Company entered into a contract for the closure of the Upper and Lower Ash Ponds at Chesterfield.[32]

The CCR Rule does not apply to landfills that ceased accepting CCR prior to October 15, 2015.[33] Therefore, the Chesapeake landfill, though included in the CCR Projects, is not covered by the CCR Rule and is not subject to its reporting requirements.

Q9. WHAT LEGISLATION REGULATES DISCHARGES FROM CCR PONDS?

A9. According to Company witness Messinger:

> "The Clean Water Act, as implemented by the Virginia Department of Environmental Quality ("VDEQ") through the issuance of Virginia Pollutant Discharge Elimination System ("VPDES") permits, is the prevailing regulatory structure that provides the basis for decisions the Company can make about how to manage water discharges from a facility. … The VPDES permits regulate discharges of effluent (water) on an outfall-by-outfall basis. The effluent limits for any given outfall are based on, among other things, the type and nature of the constituents in the effluent, the location of the discharge point, industry constituent-specific limits, and water quality standards. In order to achieve the prescribed effluent limits, a water treatment system is often required, which will vary in type and complexity based on the pollutants and volume of water that must be treated.

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closure. Factors of Safety Assessment reports show that certain sections of three of the four ponds did not meet the safety requirements. All four closed ponds are smaller than 40 acres, according to information in their respective Closure Plans.

32 Direct Testimony of Mark D. Mitchell in Rider E, Case No. PUR-2020-00003, at 7.

33 § 257.50(d) of the CCR Rule.

> "Additional site-specific water related activities, such as stormwater control and dewatering, are not prescribed by regulation, but must be managed to meet permit limits prior to discharging water from the facility. Stormwater controls are designed to minimize the amount of water that comes in contact with the CCR and must then be managed through the wastewater treatment system. Clean (non-contact) stormwater can be discharged without treatment, although it is still regulated under the facility VPDES permit. Dewatering can be accomplished through a variety of methods, such as rim ditches and well points, to facilitate the separation of water from the solids within the pond. Dewatering is necessary for the stability of the working surface of the ash pond, but also ensures that excess water is not released during the transportation of the excavated ash or when deposited into an on-site landfill."[34]

Q10. WHEN WAS THE COMPANY FIRST REQUIRED TO EVALUATE THE CLEAN CLOSURE OF THE CCR UNITS BY RECYCLING THE ASH OR MOVING IT TO A LINED LANDFILL?

A10. Virginia Senate Bill 1398, approved on April 5, 2017, required the Company, among other things, to evaluate the clean closure of the CCR units by recycling the ash for use in cement or moving it to a landfill, and to transmit its assessment to state agencies and legislative committees by December 1, 2017. Further, DEQ was required to delay the issuance of a permit to close any CCR unit until at least May 1, 2018.

Consequently, the Company commissioned an AECOM study[35] that estimated costs, duration, and risks of various clean closure options along with cap-in-place. Each clean closure option was considered on a standalone basis; combinations of possible options for each site were not evaluated, which led to projected timelines extending beyond statutory closure deadlines in some cases. Offsite landfilling options assumed CCR disposal in commercial landfills or building a new regional landfill that could accept CCR from all ponds; available and planned lined landfill capacity in the Company's network was

[34] Company's response to Staff Interrogatory No. 6-39. *See* Attachment KK-4 for further details.
[35] Attachment KK-5 includes the Executive Summary of the 2017 AECOM study.

not considered. Cost estimates were preliminary Class 5 estimates (+100%, -50%).[36] The study showed that the cap-in-place option for each site would be the cheapest, fastest, and least risky option; environmental risks could be mitigated through groundwater corrective measures included in cost estimates.

Also, the Company implemented the Interim Water Management Plan after passage of SB 1398 to eliminate stormwater contact with ash, which allowed its discharge without treatment. The costs were approved for recovery through Rider E.[37]

Q11. WHAT LEGISLATION CREATED UNCERTAINTY AS TO WHETHER CCR UNITS MAY BE CAPPED IN PLACE?

A11. According to the Company, SB 1398 and SB 807 created uncertainty regarding cap-in-place as an acceptable closure method for the Company's CCR ponds within the Chesapeake Bay Watershed.[38]

Virginia Senate Bill 807, approved on March 30, 2018, directed DEQ to further delay the issuance of a permit to close any CCR unit until July 1, 2019. The bill required the Company, among other things, to issue a request for proposals for entities to conduct recycling or beneficial use projects for the CCR, and to transmit a business plan to the Governor, state agencies and legislative committees by November 15, 2018.

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[36] AECOM provided the following explanation of Class 5 estimates in the Executive Summary, "Costs are Class 5 estimates (+100%, -50%) that include taxes, overhead, escalation, contingency, and typical contractor mark-ups to reflect potential market values for the corresponding closure options over their full durations. The estimates are preliminary and represent AECOM's opinion of the probable costs based on information available at the time of this study. Actual costs may vary significantly if market conditions and pricing assumptions change." Class 5 cost estimates are appropriate for concept screening. *See* Attachment KK-6 for Cost Estimate Classification Matrix, which ties levels of project definition with expected accuracy ranges of cost estimates.

[37] The project is described in the Company's responses to interrogatories in the 2020 Rider E case. As discussed earlier, Charah, Inc. was contracted to grade ash and place liner over it to eliminate stormwater contact with ash (The Interim Water Management Plan). *See* Attachments KK-2 and KK-3 for copies of the Company's responses to Interrogatory Nos. AG 2-42 and Staff 8-51, respectively, in Case No. PUR-2020-00003.

[38] Direct Testimony of Mark D. Mitchell in Rider E, Case No. PUR-2020-00003, at 9.

In March 2018, the Company paused the ongoing closure in place work for the Lower and Upper Ash Ponds at the Chesterfield Power Station.[39] Also, to comply with SB 807, the Company commissioned another AECOM study[40] that focused specifically on beneficiation. Cost estimates were Class 4 estimates (+50%, -30%).

According to the Company, considerations from the two abovementioned AECOM studies became the foundation for the Company's proposed course of action in the current filing.[41]

Q12. WHAT LEGISLATION REQUIRED CLOSURE BY REMOVAL OF CCR UNITS WITHIN THE CHESAPEAKE BAY WATERSHED?

A12. Effective July 1, 2019, SB 1355 directed the Company to close its CCR units at the four Power Stations by removal. The CCR must be disposed in a permitted landfill "on the property upon which the CCR unit is located, adjacent to the property upon which the CCR unit is located, or off of the property on which the CCR unit is located, that includes, at a minimum, a composite liner and leachate collection system."[42] Also, the Company shall "beneficially reuse a total of no less than 6.8 million cubic yards in aggregate of such removed CCR from no fewer than two of the sites."[43]

SB 1355 further requires the Company to develop a transportation plan in consultation with local governments if CCR is to be removed off-site. Such plan shall include rail and barge transport, if feasible, and detailed plans for truck transportation.[44]

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[39] *Id.*
[40] Attachment KK-7 includes the Executive Summary of the 2018 AECOM study.
[41] Company's response to Staff Interrogatory No. 3-19. *See* Attachment KK-8.
[42] SB 1355 B.
[43] *Id.*
[44] SB 1355 D.

SB 1355 directs the Company to identify plans for utilizing local workers and give priority to their hiring.[45] To comply with this requirement, the Company included contractual provisions that require its water treatment, excavation, and beneficiation contractors to use reasonable efforts to give priority to and maximize the use of Virginia-based entities in the subcontracting of the work and the hiring of Virginia residents.[46]

The closure shall be completed no later than 15 years after initiating the closure process at each CCR unit.[47] According to Company witness Messinger, "[i]nitiating closure can include dewatering, applying for permits or other preparatory actions."[48]

The Commission "shall determine whether the utility's plan for CCR unit closure, and the projected costs associated therewith, are reasonable and prudent."[49]

Q13. WHAT OTHER REGULATION IS RELEVANT TO CCR UNITS CLOSURE?

A13. According to Company witness Messinger, if an onsite landfill or recycling of ash excavated from the Power Station ash ponds is not feasible, the ash will be disposed of at a commercial landfill. Such landfills must meet Rule 258 Criteria, and multiple commercial landfills in Virginia have been determined to meet them.[50] Such options were also estimated to be among the least economical in the 2017 AECOM Study commissioned after the passage of SB 1398.

Q14. WHAT LEGISLATION REQUIRED CONSIDERATION OF ENVIRONMENTAL JUSTICE?

[45] SB 1355 F.
[46] Company's response to Staff Interrogatory No. 3-27. *See* Attachment KK-9.
[47] SB 1355 C.
[48] Messinger Direct at 3.
[49] SB 1355 I.
[50] Messinger Direct at 5.

A14. The Virginia Environmental Justice Act 2020 reinvigorated the Company's engagement with environmental justice communities to ensure their fair treatment and allow them to participate in CCR projects' development and approval. The Company has conducted an environmental justice analysis for the Chesterfield Power Station and identified eleven minority and/or low-income communities within the 2-mile radius study area. The Company has also worked with local and state stakeholders and considered their feedback and inputs during the development of SB 1355. A Memorandum of Understanding signed between the Company and Chesterfield County was developed with the involvement of local communities; it aims to mitigate CCR projects' impacts on public access to roads and recreational resources.

While the Company is working with local governments on securing approvals for the planned CCR projects at the other three sites, the process of identifying local environmental justice communities is in the early stages.[51]

Q15. PLEASE EXPLAIN HOW FEDERAL, STATE, AND LOCAL REGULATIONS WORK IN CONJUNCTION TO DETERMINE THE SCOPE OF WORK IN RIDER CCR.

A15. Considering the complexity and rapid evolution of various regulations applicable to the Company's CCR units within the Chesapeake Bay watershed, Staff had numerous conversations with the Company to tie its handling of CCR material at the Power Stations to relevant regulations. Based on these conversations and Staff's independent analysis, Staff concluded that the Company has been carefully and attentively following regulatory developments applicable to handling of CCR material and acted promptly to comply with

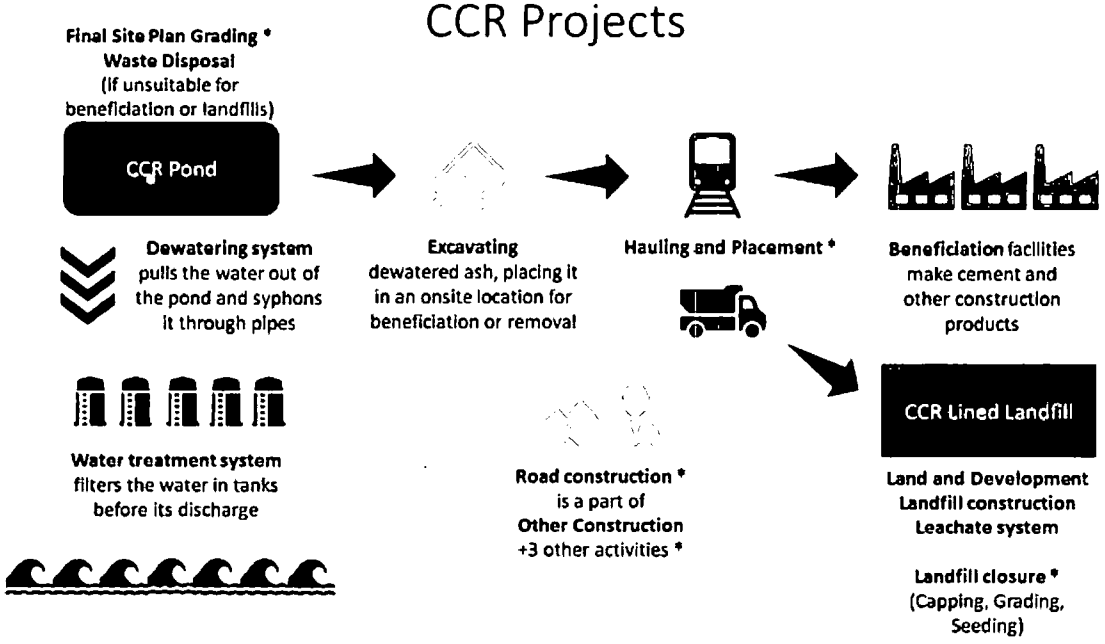
[51] Company's response to Staff Interrogatory No. 3-22. *See* Attachment KK-10.

the requirements. Further, Staff requested that the Company provide a detailed analysis of regulatory impact on the scope of work in Rider CCR, along with a list of CCR handling projects that stemmed from regulations enacted prior to adoption of SB 1355, and identify cost recovery mechanisms for each project. The Company's responses are attached to my testimony.[52]

SCOPE AND TIMING OF CCR PROJECTS

Q16. PLEASE PROVIDE A HIGH-LEVEL OVERVIEW OF KEY STEPS THAT MUST BE COMPLETED FOR CLOSURE BY REMOVAL.

A16. The infographic below shows key workstreams of the CCR projects, and the Company provided further descriptions of the work planned for each step.[53]



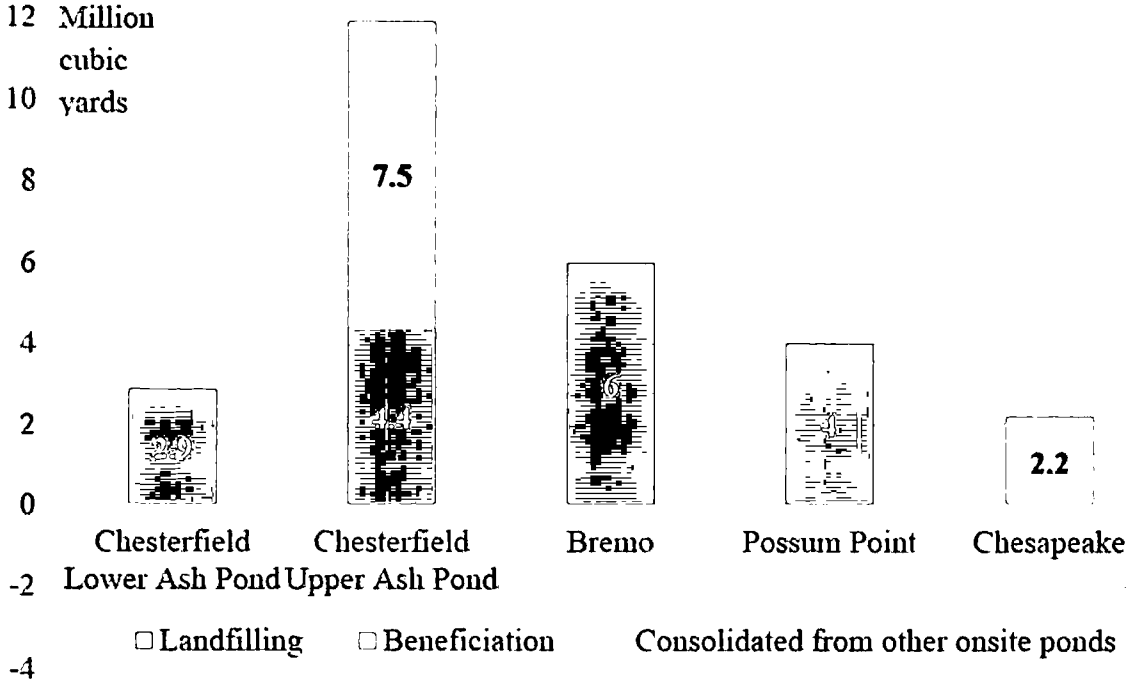
Q17. PLEASE DESCRIBE THE TIMELINE OF THE CCR PROJECTS.

[52] Company's responses to Staff Interrogatory Nos. 9-45, 9-46, 9-47, 9-48, 9-49. *See* Attachments KK-11, KK-12, KK-13, KK-14, KK-15.
[53] Company's response to Staff Interrogatory No. 3-20. *See* Attachment KK-16.

A17. Extraordinarily sensitive Attachment KK-17 includes a timeline (Gantt chart) that shows when key activities are projected to be performed at each site, based on Schedule 46. The Company has already started work and awarded major contracts at the Chesterfield site; Bremo is next in line, followed by Possum Point and Chesapeake, the three latter projects subject to local approvals.

Q18. PLEASE SUMMARIZE THE COMPANY'S CCR PLACEMENT PLANS.

A18. The chart below summarizes the Company's plans regarding CCR placement.[54] CCR Projects at each site will be described later in this section.



[54] CCR volumes in each of the Chesterfield ponds and Bremo North Ash Pond come from the Company's response to informal Staff Interrogatory No. 1-1. *See* Attachment KK-18. CCR volume at the Chesapeake Energy Center comes from the Company's response to Staff Interrogatory No. 9-50. *See* Attachment KK-19. Volumes of ash consolidated from the closed ponds come from the Bremo North Pond Closure Plan and Possum Point Ponds ABC and E Closure Plans posted on the Company's website.

Chesterfield Power Station

Q19. PLEASE DESCRIBE THE CCR PROJECTS AT THE CHESTERFIELD POWER STATION.

A19. The Chesterfield Power Station is a flagship site for the CCR Projects. It has the highest volume of CCR material among the four Power Stations—approximately 15 million cubic yards of CCR between the Upper and Lower Ash Ponds—and the complexity and duration of the Projects at the station are the most demanding as well. Also, the Company has reached several CCR project milestones at the site.

The Company awarded a contract for construction of the permanent water treatment system to WesTech Engineering Inc.[55] **[BEGIN EXTRAORDINARILY SENSITIVE]** [redacted] **[END EXTRAORDINARILY SENSITIVE]** This system is complementary to dewatering and water treatment projects previously approved in Rider E. The distinction between Rider E and Rider CCR projects at Chesterfield will be discussed in the next question.

The Company plans to beneficiate up to 7.5 million cubic yards of CCR; the beneficiation contract was awarded to Charah LLC ("Charah") in December 2020,[58] upon evaluating **[BEGIN EXTRAORDINARILY SENSITIVE]** [redacted]

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[55] Stites Direct at 14.
[56] Company's response to Office of Attorney General Interrogatory No. 3-26. *See* extraordinarily sensitive Attachment KK-20 for additional details on received water treatment bids.
[57] According to information provided by the Company during the informal call with Staff on April 30, 2021.
[58] Stites Direct at 14. *See also* extraordinarily sensitive Attachment KK-21 for additional contract details (beneficiation volumes by year) provided in the Company's response to Staff Interrogatory No. 4-29.
[59] Company's response to Office of Attorney General Interrogatory No. 3-26. *See* extraordinarily sensitive Attachment KK-22 for additional details on the beneficiation RFP process.

[redacted] **[END EXTRAORDINARILY SENSITIVE]** The 2017 AECOM study and CSX state that rail is a faster and cleaner option than trucking.[61]

Upon evaluating **[BEGIN EXTRAORDINARILY SENSITIVE]** [redacted] **[END EXTRAORDINARILY SENSITIVE]** excavation and construction bids received in September 2020,[63] the Company awarded the contract to Saiia Construction Company ("Saiia") in March 2021. Saiia will **[BEGIN EXTRAORDINARILY SENSITIVE]** [redacted] **[END EXTRAORDINARILY SENSITIVE]** transport the CCR from the ponds to an onsite transfer location for beneficiation, and Charah will coordinate the transfer of ash offsite by rail.[65]

Approximately 7.5 million cubic yards of CCR material that is not recycled as part of the beneficiation agreement will be transported by truck to the existing Fossil Fuel Combustion Products Management Facility ("FFCP" or "Reymet Landfill") on Company-owned, non-contiguous property nearby. Cell #1 is the only FFCP cell that is currently in service.[66] Cell #1 can fit 0.93 million cubic yards of coal ash; approximately 0.44 million

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[60] According to information provided by the Company during the informal call with Staff on April 30, 2021.
[61] https://www.csx.com/index.cfm/library/files/customers/commodities/waste/coal-ash-brochure/
[62] Company's response to Office of Attorney General Interrogatory No. 3-26. *See* extraordinarily sensitive Attachment KK-23 for additional details on the excavation RFP process.
[63] Stites Direct at 14. The RFP process began in March 2020. **[BEGIN EXTRAORDINARILY SENSITIVE]** [redacted] **[END EXTRAORDINARILY SENSITIVE]** according to the Company's response to Office of Attorney General Interrogatory No. 3-26. *See* extraordinarily sensitive Attachment KK-23 for additional details on the excavation RFP process.
[64] According to information provided by the Company during the informal call with Staff on May 13, 2021.
[65] Stites Direct at 14.
[66] Stites Direct at 9.

cubic yards of that volume will be used for disposal of coal ash from the active coal-fired units at the station. The remaining volume will be filled with the currently ponded ash.[67] The Company plans to construct three additional cells to accommodate the CCR from the Upper and Lower Ash Ponds in the Reymet Landfill; its gross capacity will be 9.36 million cubic yards after the completion of all four cells.[68] Construction of the three new cells is included in Saiia's contract scope.[69]

To haul ash to the Reymet Landfill, the Company will have to access public roads at and around Henricus Historical Park and Dutch Gap Conservation Area via Coxendale Road,[70] which will be temporarily closed to the public. The Company and Chesterfield County have collaboratively developed a transportation plan and signed a Memorandum of Understanding.[71] Subject to the Commission's approval, the Company will fund $68 million of County-led roadway improvement and infrastructure projects to create four alternative solutions for public access to the recreation areas.[72]

Q20. PLEASE EXPLAIN HOW RIDER CCR PROJECTS AND RIDER E PROJECTS AT THE CHESTERFIELD POWER STATION ARE COMPLEMENTARY.

A20. Rider E projects related to engineering and permitting, water management, construction of Cell #1 of the Reymet Landfill, and haul road and bridge construction became a springboard for Rider CCR projects at the Chesterfield Power Station.[73]

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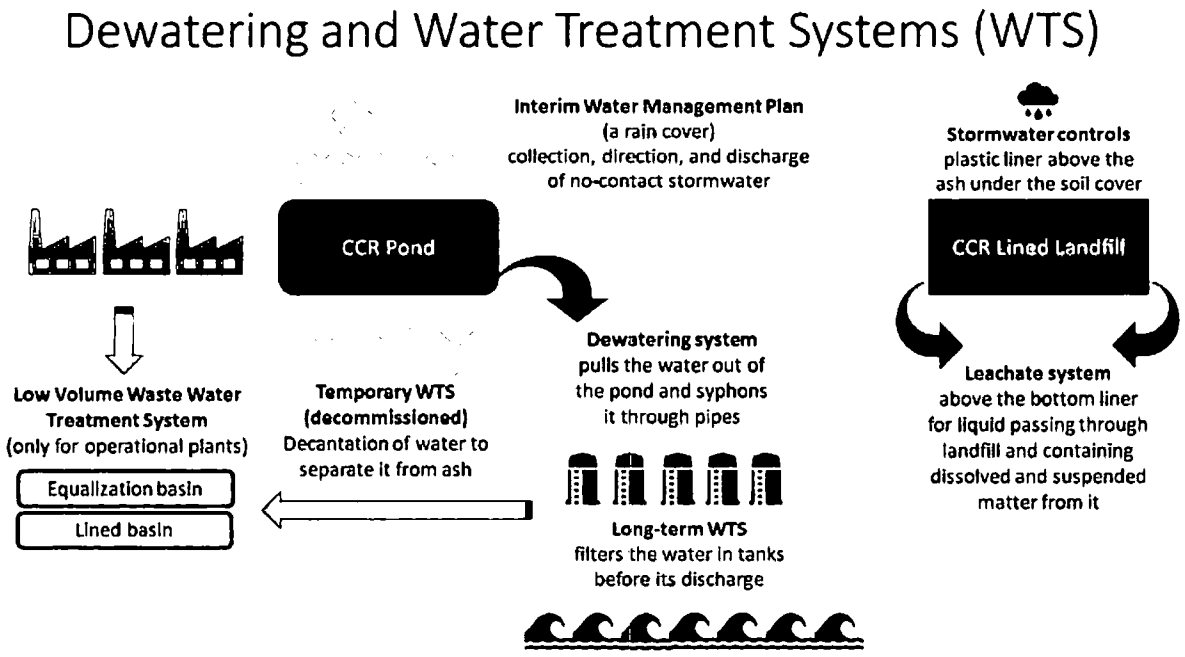
[67] Company's response to Staff Interrogatory No. 4-28. *See* Attachment KK-24.
[68] Company's response to Staff Interrogatory No. 4-34a. *See* Attachment KK-25.
[69] Stites Direct at 14.
[70] *Id.* at 9.
[71] *Id.* at 10.
[72] *Id.* at 10-12.
[73] The relevance of Rider E investments to reduction of Rider CCR projects' scope is described in the Company's responses to Interrogatories in the 2020 Rider E case. *See* Attachments KK-26 and KK-27 for copies of the Company's responses to Interrogatory Nos. AG 2-44 and Staff 11-61 in that case. Also, according to Staff's informal conversations with the Company on June 4, 2021, the haul road and bridge (Proctor Creek) first mentioned in the Direct Testimony of Mark D. Mitchell in Case No. PUR-2018-00195, at 5 (Rider E), will be used for Rider

The infographic below depicts key water-related projects at Chesterfield and could be considered a blueprint for water-related projects at other Power Stations.



Rider E projects are shown in the left portion of the infographic; they include the Low Volume Waste Water Treatment System,[74] the temporary water treatment system that decanted and treated water from the Lower Ash Pond from approximately November 2017 until September 2019, and the Interim Water Management Plan (rain cover over the Lower Ash Pond) that replaced it.[75]

CCR projects as well. *See Petition of Virginia Electric and Power Company, For approval of a rate adjustment clause, designated Rider E, for the recovery of costs incurred to comply with state and federal environmental regulations pursuant to § 56-585.1 A 5 e of the Code of Virginia,* Case No. PUR-2018-00195, 2019 S.C.C. Ann. Rept. 328, Final Order (Aug. 5, 2019).

[74] The Low Volume Waste Water Treatment System is described in detail in the Direct Testimony of Mark D. Mitchell in Case No. PUR-2018-00195, at 6.

[75] The temporary water treatment system was installed and operated by Proact Services Corporation; it was decommissioned in September 2019, after Charah completed the Interim Water Management Plan (ash grading and the installation of a rain cover over the Lower Ash Pond on July 31, 2019). *See* the 2020 Rider E case, Direct Testimony of Mark D. Mitchell, at 8-11; the 2020 Rider E case, Direct Testimony of Lisa C. Messinger, at 8-9; and Attachment KK-2 for a copy of the Company's responses to Interrogatory No. AG 2-42 in the 2020 Rider E case.

Rider CCR projects include dewatering the ash and building a permanent water treatment system for filtering the water before its discharge. The Interim Water Management Plan will help reduce the volume of water that needs treatment. Also, according to informal conversations with the Company, the water filtered through the new permanent water treatment system will then be directed to flow through the Low Volume Waste Water Treatment System.[76]

In addition, new lined CCR landfills must have a leachate system (required by both the CCR Rule[77] and SB 1355[78]) and run-on and run-off stormwater controls.[79] Lined Cell #1 of the Reymet landfill was built after the passage of the CCR Rule, and its cost was approved for recovery through Rider E. It will be filled with operational and currently ponded ash by December 2023,[80] while additional landfill cells will be under construction.

Bremo Power Station

Q21. PLEASE DESCRIBE THE CCR PROJECTS AT THE BREMO POWER STATION.

A21. At the Bremo Power Station, the Company has consolidated all the accumulated CCR (approximately 6 million cubic yards) into the North Ash Pond[81] and stabilized the pond with the temporary rain cover.[82] The Company has purchased property adjacent to and

[76] According to information provided by the Company during the informal call with Staff on May 13, 2021.
[77] § 257.70(a)(1) of the CCR Rule.
[78] SB 1355 B (ii)(b).
[79] § 257.81(a) of the CCR Rule.
[80] Company's response to Staff Interrogatory No. 4-28c. *See* Attachment KK-24.
[81] According to the North Ash Pond Closure plan posted on the Company's website, approximately 2 million cubic yards of ash had to be relocated into the North Ash Pond from the onsite, inactive East Ash Pond and West Ash Pond, in the latter case by means of hydraulic dredging (according to the Notice of Intent to Close). **[BEGIN EXTRAORDINARY SENSITIVE]** [redacted] **[END EXTRAORDINARY SENSITIVE]**
[82] Stites Direct at 6. According to Staff's informal conversations with the Company on June 4, 2021, the cost of the temporary rain cover is not requested for recovery through Rider CCR.

contiguous with, the Power Station and is developing a design to construct a new lined landfill on this property. The Company is negotiating its plan to move the CCR to the new landfill with Fluvanna County, along with evaluating alternative approaches.[83] The property needs to be rezoned to allow construction and operation of the new landfill, and a special use permit is needed; both are subject to approval by Fluvanna County.[84] Additional information (including maps, infographics, and dates of key activities) is available in the presentation prepared by the Company for the community meeting on April 29, 2021.[85]

Possum Point Power Station

Q22. PLEASE DESCRIBE THE CCR PROJECTS AT THE POSSUM POINT POWER STATION.

A22. At the Possum Point Power Station, the Company has consolidated all the accumulated CCR (approximately 4 million cubic yards) into Pond D.[86] The Company is negotiating its plan to construct a new onsite landfill and move the CCR there with Prince William County, along with evaluating alternative approaches, including transfer of CCR material to an offsite landfill or beneficiation.[87] Transportation options under consideration for CCR material transfer to an offsite landfill include trucking, barge, or rail.[88]

[83] Stites Direct at 7.
[84] Company's response to Staff Interrogatory No. 3-22. *See* Attachment KK-10.
[85] https://cdn-dominionenergy-prd-001.azureedge.net/-/media/pdfs/global/projects-and-facilities/electric-projects/coal-ash/bremo-community-meeting-presentation.pdf *See* Attachment KK-28.
[86] Including CCR material relocated from onsite, inactive ponds ABC and E, which had contained approximately 0.16 and 0.73 million cubic yards of coal ash, respectively, prior to the start of excavation.
[87] Stites Direct at 15.
[88] Company's response to Staff Interrogatory No. 3-22. *See* Attachment KK-10.

Chesapeake Energy Center

Q23. PLEASE DESCRIBE THE CCR PROJECTS AT THE CHESAPEAKE ENERGY CENTER.

A23. The Chesapeake Energy Center has 2 million cubic yards of CCR between the Bottom Ash Pond and the landfill,[89] which was built on top of a historical pond (closed in 1980) and which houses fly ash.[90] The Company intends to beneficiate or recycle as much as possible of that volume. Beneficiation vendor selection is postponed until after the legal dispute with the City of Chesapeake regarding the necessity of Conditional Use Permits is resolved.[91] The Company also anticipates working with the City to evaluate further the viability of this alternative, including the transportation needs.[92]

THE PLANNING PROCESS AND STRATEGIC OPTIONS ANALYSIS

Q24. PLEASE DISCUSS KEY STRATEGIC DECISIONS MADE BY THE COMPANY.

A24. The Company has made four significant strategic decisions, including (1) commissioning a high-level (Class 5) feasibility study that evaluated several "all or nothing" CCR disposal options for each power station and that is now serving as one of the key reference documents; (2) selecting two power stations from which CCR material will be beneficiated; (3) selecting onsite or adjacent locations for new lined landfills (subject to the respective Counties' approvals) and completing landfill design plans; and (4) determining the degree of vendor involvement and the scope of work for key vendors at the Chesterfield site.

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[89] Stites Direct at 16.
[90] Based on informal conversations with the Company on June 4, 2021.
[91] Stites Direct at 16.
[92] Company's response to Staff Interrogatory No. 3-22. *See* Attachment KK-10.

Generally, the Company's preferred option is to build landfills onsite or as close as possible to each site whenever feasible. CCR material that cannot be placed in such newly built landfills will be beneficiated to comply with SB 1355. According to Company witness Messinger, "[i]f an onsite landfill or recycling of ash excavated from the Power Station ash ponds is not feasible, the ash will be disposed of at a commercial landfill."[93] Strategic planning considerations for each site are outlined in the Company's responses to interrogatories of the Office of Attorney General.[94]

Q25. PLEASE DISCUSS KEY TACTICAL DECISIONS MADE BY THE COMPANY.

A25. The first tactical decision that the Company faces is an initiation of pond closures; the 15-year term for completing a pond closure starts from the moment of its initiation.[95] As long as beneficiation is considered an option, an initiation of a pond closure may be postponed in two-year increments.[96]

The other set of tactical decisions concerns selection of specific ways to accomplish each necessary element of pond closure. Staff prepared decision trees to illustrate an array of tactical choices available to the Company and legislative guidelines applicable to each choice.[97]

Q26. PLEASE DISCUSS THE COMPANY'S RATIONALE FOR BENEFICIATING CCR MATERIAL FROM THE CHESTERFIELD AND CHESAPEAKE POWER STATIONS.

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[93] Messinger Direct at 5.
[94] Company's responses to the Office of Attorney General Interrogatories Nos. 3-21 (Bremo), 3-26 (Chesterfield), 3-31 (Chesapeake), and 3-36 (Possum Point). *See* Attachments KK-29, KK-30, KK-31, and KK-32.
[95] SB 1355 C.
[96] § 257.102(e)(2)(ii) of the CCR Rule.
[97] *See* Attachment KK-33.

A26. At the Chesterfield Power Station, the Company plans to beneficiate 7.5 million cubic yards of CCR material, which is more than the 6.8 million cubic yards required by SB 1355. The reason for beneficiating CCR material above the statutorily required volumes (despite higher cost of beneficiation[98]) is the limited maximum capacity of the Reymet Landfill; it can reach 9.36 million cubic yards upon construction of Cells #2, 3, and 4, of which 0.44 million cubic yards is reserved for coal ash produced by the two coal-fired units still in service.[99]

At the Chesapeake Power Station, there is no place for building a new lined landfill onsite. Therefore, the Company intends to beneficiate CCR from the unlined landfill and the pond. No beneficiation contracts were awarded for the Chesapeake Energy Center under the 2019 RFP, and the Company is planning to issue a new RFP for future beneficiation services at the site after resolving various legal issues with the City of Chesapeake.[100] CCR material that is not suitable for beneficiation will have to be removed from the site to close the CCR units. While the coal-fired units were in operation, coal ash was routinely excavated from the pond, dewatered, and deposited in the onsite landfill or beneficiated[101] **[BEGIN EXTRAORDINARILY SENSITIVE]** [redacted] **[END EXTRAORDINARILY SENSITIVE]**

The Company relied on information from prior CCR studies, along with the 2019 beneficiation RFP, to determine that beneficiating the CCR material from the Possum Point Power Station was not the most cost-effective option under the constraints of SB 1355.[102]

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[98] According to the Company's response to the Office of Attorney General Interrogatory No. 3-46, beneficiating CCR material would be $37.55/ton more expensive than landfilling it. *See* Attachment KK-34.
[99] Company's response to Staff Interrogatory No. 4-28. *See* Attachment KK-24.
[100] Company's response to the Office of Attorney General Interrogatory No. 3-31. *See* Attachment KK-31.
[101] History of Construction of the Bottom Ash Pond posted on the Company's website, at 4.
[102] Company's response to the Office of Attorney General Interrogatory No. 3-36. *See* Attachment KK-32.

The Company did not conduct a Bremo-specific Request for Proposals to evaluate alternatives to the Company's proposed plan because the SB 1355 beneficiation requirements are otherwise met in the Company's proposed plan.[103]

Q27. DOES STAFF HAVE STRATEGIC PLANNING SUGGESTIONS?

A27. Yes. Staff has discovered that a new Cell 2A/3B at the Curley Hollow Landfill at the Virginia City Hybrid Energy Center ("VCHEC") will be placed in service in the Fall 2021; its capacity will be 14.2 million cubic yards.[104] The Company did not consider VCHEC as a potential recipient for Rider CCR materials due to the distance between the Power Stations and VCHEC, absence of on-site rail infrastructure at VCHEC, and permit limitations.[105] Staff suggests that the Company take a second look at VCHEC and perform a detailed Class 2 study to analyze transporting CCR material by rail from the Bremo and Possum Point Power Stations and placing it into Cell 2A/3B. Staff believes that performing such analysis and submitting it to the Commission in the next Rider CCR filing will not delay the Company's pond closure plans because landfill construction is scheduled to begin around the third quarter 2022 at Bremo[106] and around the first quarter 2023 at Possum Point.[107]

Even though VCHEC is currently lacking rail infrastructure onsite,[108] Company witness Robert M. Bisha testified in Case No. PUE-2007-00066 ("VCHEC CPCN case") that "[k]ey in the selection of this site was its proximity to and availability of adequate fuel

[103] Company's response to the Office of Attorney General Interrogatory No. 3-21. *See* Attachment KK-29.
[104] Company's response to Staff Interrogatory No. 4-30. *See* Attachment KK-35.
[105] Company's response to Staff Interrogatory No. 4-31. *See* Attachment KK-36.
[106] Stites Direct at 7.
[107] *Id.* at 15.
[108] Staff recognizes that additional rail infrastructure will be required on-site (and potentially offsite) at VCHEC for the Curley Hollow landfill to accept CCR material from the Power Stations by rail.

and accessibility to roads, rail, and water supply infrastructure."[109] Also, Company witness James K. Martin testified in that case that "[t]he Site has access to a rail siding that was used for a previous coal processing facility and it will be designed and permitted for future installation to allow alternative transportation to the Site."[110] Recently, Company witness Glenn A. Kelly testified in case No. PUR-2020-00035 that "the VCEA explicitly carved out VCHEC to allow for its continued operations until 2045, presumably in recognition of … the benefits it provides both to the local economy and to the Commonwealth's land and water cleanup efforts."[111] Although the cleanup efforts were a reference to reclaiming and using gob coal at VCHEC, dedicating Cell 2A/3B as a permanent storage location for Rider CCR materials would also advance environmental cleanup efforts while creating new jobs in Wise county. According to Company witness Glenn A. Kelly, "VCHEC supports jobs for 153 full-time employees, as well as an estimated 350 to 400 additional jobs in the region."[112]

Staff suggests transportation of CCR material from the Bremo and Possum Point Power Stations to the Curley Hollow landfill because Cell 2A/3B can fit the full volume of CCR material from both stations. According to the Company, the capacity in the preliminary designs for the proposed landfills at Bremo and Possum Point are approximately 6.5 million cubic yards and 5.3 million cubic yards.[113] Further, AECOM

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[109] *Application of Virginia Electric and Power Company, For a certificate of public convenience and necessity to construct and operate an electric generation facility in Wise County, Virginia, and for approval of a rate adjustment clause under §§ 56-585.1, 56-580 D, and 56-46.1 of the Code of Virginia*, Case No. PUE-2007-00066, Direct Testimony of Robert M. Bisha, at 2. (July 13, 2007)

[110] VCHEC CPCN case, Direct Testimony of James K. Martin, at 12.

[111] *Commonwealth of Virginia, ex rel. State Corporation Commission, In re: Virginia Electric and Power Company's Integrated Resource Plan filing pursuant to Va. Code § 56-597 et seq.*, Case No. PUR-2020-00035, Rebuttal Testimony of Glenn A. Kelly, at 23.

[112] *Id.*

[113] Company's response to Staff Interrogatory No. 4-34a. *See* Attachment KK-25.

considered railing CCR material from both Power Stations as a feasible option in the studies commissioned by the Company in 2017 and 2018, in the latter case based on options proposed by beneficiation bidders in their responses to the Company's RFP. The VCHEC option could mitigate potential delay risks stemming from local approval processes related to proposed landfill construction projects in Fluvanna and Prince William Counties.

If the Commission agrees with Staff's reasoning, Staff recommends that the Commission direct the Company to present a Class 2 study in the next Rider CCR proceeding in order to determine whether railing CCR material from the Bremo and Possum Point Power Stations to VCHEC and placing it in Cell 2A/3B of the Curley Hollow Landfill may be a lower cost solution, considering all the necessary infrastructure investments.

Q28. ISN'T THE CAPACITY OF THE CURLEY HOLLOW LANDFILL INCLUDING THE NEW CELL 2A/2B ADDITION NEEDED FOR THE ASH GENERATED BY VCHEC?

A28. No. Based on the Company's 2020 IRP filed in Case No. PUR-2020-00035, VCHEC is projected to have capacity factors in the single digits with only a 3.5% capacity factor expected for 2035. VCHEC was originally designed as a base load unit; such units typically run at capacity factors ranging from 70% to 90%. Based on Staff's calculations, there appears to be enough existing capacity at the Curley Hollow Landfill to accommodate all of the ash created by running VCHEC through 2035. Further, it appears that new Cell 2A/3B may not be needed for VCHEC.

Q29. DOES STAFF HAVE TACTICAL PLANNING SUGGESTIONS?

A29. Yes. Considering the 15-year horizon of the CCR projects, along with the potential for ongoing CCR research and entrepreneurial activity aimed at the development of CCR handling solutions that could prove to be more economical and efficient, Staff recommends that the Company consider an array of available technological options for each workstream before awarding significant contracts and include the respective feasibility and cost analyses in future annual Rider CCR filings.[114]

Also, an opportunity to derive benefits from conservation and future use of coal ash may stem from research.[115] Consistent with the Company's culture of innovation and subsection E of SB 1355, Staff recommends that the Company evaluate emerging beneficiation solutions on an ongoing basis and include the respective feasibility and cost analyses in annual Rider CCR filings. Staff further recommends that, if a lower cost solution is identified, that the Company maintain the flexibility to make changes to its plans to take advantage of any potential cost savings.

LONG-TERM FINANCIAL PLANNING

Q30. WHAT IS THE TOTAL ESTIMATED COST OF THE CCR PROJECTS, COLLECTIVELY AND AT EACH SITE?

[114] It is noteworthy that the Kentucky Public Utility Commission ("KPUC") ordered a utility company to apply for a certificate of public convenience and necessity for building or closing of coal ash units. Therefore, the KPUC could evaluate the overall costs of closure before costs are incurred. Likewise, Indiana specifically requires utilities to file for a certificate of public convenience and necessity for "federally mandated" environmental costs. *(A Comprehensive Survey of Coal Ash Law and Commercialization: Its Environmental Risks, Disposal Regulation, and Beneficial Use Markets, National Association of Regulatory Utility Commissioners,* January 2020, at 77. https://acaa-usa.org/wp-content/uploads/2021/05/NARUC_CoalAsh_rev_FINAL_061220_RLD_SRB.pdf)

[115] "Concerned with a potential decline in the supply of coal ash byproducts as a result of the decline in coal-based electricity generation and closure of CCR units, private and public investment is also supporting research in extracting marketable byproducts from legacy coal ash. While this research continues and while new applications for coal ash become commercially deployable, there is a need for long-term storage of coal ash inventory as opposed to disposal facilities ... Before closure of CCR units, regulatory policy may consider re-examination to find regulatory pathways that incentivize the conservation of coal ash as a commercial resource consistent with RCRA's conservation objectives." (*Id.* at 87).

A30. The total estimated cost of the CCR projects is $2.716 billion, excluding financial costs.[116] The table below shows cost and CCR volume differences across ponds.

	Total Cost[117]	CCR volume[118]	Cost per cubic yard	Cost % of total	Volume % of total	Cost per cubic yard
	$ million	million cubic yards	$/cubic yard	%	%	% above or below average
Chesterfield LAP	$ 434	2.9	$ 149.69	16%	11%	49%
Chesterfield UAP	$ 1,179	11.9	$ 98.90	43%	44%	-2%
Bremo	$ 530	6.0	$ 88.32	20%	22%	-12%
Possum Point	$ 347	4.0	$ 86.77	13%	15%	-14%
Chesapeake	$ 225	2.2	$ 103.20	8%	8%	3%
Total	$ 2,716	27.0	$ 100.55	100%	100%	

A chart that shows a detailed cost breakdown by cost element is available in extraordinarily sensitive Attachment KK-37.

Q31. HOW ARE COSTS PROJECTED TO ACCUMULATE OVER THE LIFETIME OF THE CCR PROJECTS?

A31. [BEGIN EXTRAORDINARILY SENSITIVE] [redacted]

[116] Stites Direct, summary.
[117] Schedule 46B, Statement 3
[118] *Id.* Ash volumes in the Chesterfield Upper and Lower Ash Ponds come from the Company's response to the informal Staff Interrogatory No. 1-1. *See* Attachment KK-18. Ash volume at the Chesapeake Energy Center comes the Company's response to the Staff Interrogatory No. 9-50. *See* Attachment KK-19.

[END EXTRAORDINARILY SENSITIVE]

Q32. ARE COSTS PER CUBIC YARD COMPARABLE ACROSS SITES?

A32. [BEGIN EXTRAORDINARILY SENSITIVE]

[119] *See* Extraordinarily sensitive Attachment KK-40.

[redacted] [END EXTRAORDINARILY SENSITIVE]

Q33. WHAT IS THE LEVEL OF CONTINGENCY PROJECTED BY THE COMPANY?

A33. The Company projects **[BEGIN EXTRAORDINARILY SENSITIVE]** [redacted] **[END EXTRAORDINARILY SENSITIVE]** contingency over the lifetime of the CCR projects.[121]

Q34. IS THE PROJECTED LEVEL OF CONTINGENCY CONSISTENT WITH THAT OF OTHER SIMILAR PROJECTS?

A34. No. In its pending Rider E case, the Company states that the current forecast of Soft Cost of the Low Volume Waste Water Treatment System at Chesterfield exceeded budget by 16.7% due to additional work in the Engineering sub-category.[122] Furthermore, the Company submitted **[BEGIN EXTRAORDINARILY SENSITIVE]** [redacted] **[END EXTRAORDINARILY SENSITIVE]**

Q35. WHAT ARE THE FINANCIAL RISK FACTORS OF THE CCR PROJECTS?

A35. CCR Projects comprise a 17-year program that will involve multiple sites, including the Power Stations' sites owned by the Company and beneficiation and commercial

[120] Company's response to informal Staff Interrogatory No. 1-2. *See* Extraordinarily sensitive Attachment KK-41.
[121] Schedule 46A – Statement 1 (ES).
[122] *Petition of Virginia Electric and Power Company, For revision of rate adjustment clause: Rider E, for the recovery of costs incurred to comply with state and federal environmental regulations pursuant to § 56-585.1 A 5 e of the Code of Virginia*, Case No. PUR-2021-00013, Direct Testimony of Brandon E. Stites, at 6.

landfill/waste management sites owned by third parties. Staff believes that managing this program is more complex than executing single-site greenfield power plant construction projects.[123] This additional complexity creates potential risks unique to the CCR Projects.

Staff has identified the following factors that may lead to actual costs' divergence from the budget (both total amounts and timing of expenses):

- Significant engineering complexity of the CCR projects drives the necessity to coordinate multiple workstreams (e.g., dewatering, water treatment, landfill construction, excavation, beneficiation, transporting of the CCR material, CCR placement, final site grading);
- Diversity of geological and precipitation conditions across the ponds reduces certainty about the condition of CCR material at the time of excavation and, consequently, precise scope of work;
- Due to each pond being a complex and dynamic system of water and ash, tailored engineering solutions are necessary for each pond, i.e., one size doesn't fit all;
- Engaging multiple contractors, potentially different contractors winning bids for comparable workstreams at different ponds;
- Projects' location and schedules conditional on securing multiple local and state approvals;
- Potential amendments in federal or state legislation may require additional work; and
- Evolving market of CCR solutions may create opportunities in the future.

[123] Staff acknowledges that the Company's extensive experience with managing capital construction projects—such as VCHEC, Bear Garden, and Greenville—contributed to the development of expertise necessary to manage programs like CCR.

Q36. HOW DOES THE COMPANY PLAN TO MANAGE THE FINANCIAL RISK FACTORS OF THE CCR PROJECTS?

A36. Staff inquired the Company about its approach to managing financial risks of the CCR Projects. The Company described four CCR program management pillars, including periodic reporting on costs and variance analysis, managing cash flows so as to stay under the $225 million annual cap for the Virginia jurisdiction, incorporating competitive bidding in its RFP process, and dedicated cross-functional CCR program staff on each site and in centralized program support.[124]

Further, Staff reviewed extraordinarily sensitive presentations provided by the Company to the Office of Attorney General. Staff found their content consistent with informal discussions on management of financial risks of the CCR program that the Company had with Staff. Specifically, **[BEGIN EXTRAORDINARILY SENSITIVE]** [redacted]. **[END EXTRAORDINARILY SENSITIVE]** Based on this limited review, Staff believes that the Company's risk management plan is appropriate.[125]

[124] Company's response to informal Staff Interrogatory No. 1-3. *See* Attachment KK-42.
[125] *See* extraordinarily sensitive Attachment KK-43.

Q37. WHAT ARE STAFF'S SUGGESTIONS ON MITIGATING THE FINANCIAL RISKS?

A37. Staff believes that the Commission could benefit from a report in which operational and financial milestones for each workstream for each pond would be tied together. Considering the complexity of the CCR Projects, Staff suggests that the Company provide the following information every six months ("reporting period"):

- Total estimated volume of the impounded CCR material as of the beginning and end of the reporting period;
- Total volume of the CCR material excavated during the reporting period and excavation cost associated with this volume;
- Total volume of the CCR material transported offsite during the reporting period, separately for placement in landfills and beneficiation, and hauling costs;
- Total volume of CCR placed in landfills during the reporting period;
- **[BEGIN EXTRAORDINARILY SENSITIVE]** [redacted] **[END EXTRAORDINARILY SENSITIVE]** including a qualitative description and an estimated percentage of work completed, and associated costs;
- Construction progress of the road infrastructure, including a qualitative description and an estimated percentage of work completed, and associated costs;
- Construction progress of each landfill cell, including a qualitative description and an estimated percentage of work completed, and associated costs;

- Total volume of beneficiated CCR during the reporting period and beneficiation costs **[BEGIN EXTRAORDINARILY SENSITIVE]** [redacted] **[END EXTRAORDINARILY SENSITIVE]**
- Estimated CCR moisture content as of the beginning and end of the reporting period;
- Total estimated volume of the impounded water as of the beginning and end of the reporting period;
- Total amount of water treated during the reporting period, and water treatment costs;
- Project management costs during the reporting period;
- Engineering costs during the reporting period;
- Significant developments in contractors' work (RFP initiated, dates and number of bids received, bid award date, contract winner, scope and cost of work contracted); and
- Comments on the reasons for discrepancy with previously projected volumes and costs, if applicable.

To the extent the Commission directs this reporting, Staff recommends that these reporting requirements be subject to relief by the Director of Public Utility Regulation at the Commission.

Q38. DOES STAFF BELIEVE THAT THE COMPANY'S COSTS HAVE BEEN PRUDENT UP UNTIL THIS POINT?

A38. Yes. The Company has incurred costs that would have been necessary under any coal ash removal option. These costs include building a water treatment system at the Chesterfield Power Station, which will filter water from the ash ponds before its discharge, as well as project management and engineering costs at each site.

COST ALLOCATION

Q39. HOW DOES THE COMPANY PROPOSE TO ALLOCATE COSTS?

A39. The Company proposes to allocate costs on an energy basis. Specifically, as previously described, the Company proposes the Factor 3 cost allocation methodology for the Virginia jurisdiction[126] and a non-bypassable uniform charge per kilowatt-hour from all customers in the Virginia jurisdiction, irrespective of their generation supplier.[127] Such approach for allocating costs associated with closure of a CCR unit is consistent with subsection H (iv) of Code § 10.1-1402.03, which states that "any such costs shall be allocated to all customers of the utility in the Commonwealth as a non-bypassable charge, irrespective of the generation supplier of any such customer."

Q40. DOES THE COMPANY PROVIDE A BASIS FOR AN ENERGY-BASED COST ALLOCATION METHODOLOGY?

A40. Yes. First, the Company explains why CCR material remediation costs correlate directly with historic energy output at the power stations. CCR material is a byproduct of burning coal to generate energy. Therefore, the volume of coal ash accumulated over the course of many years is related to the coal that fueled the Power Stations. The scope of work in Rider CCR is driven by the volume of CCR material that must be removed. Because coal fuel was the input that produced both the energy and the CCR material, allocation of the remediation costs based on energy would be reasonable, equitable, and straightforward. The Company states that the result would be in line with historic energy usage relationships.[128]

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[126] Haynes Direct at 4-6.
[127] *Id.* at 6.
[128] *Id.* at 4.

Next, the Company justifies the use of Factor 3 for allocating costs to the Virginia jurisdiction, as well as FERC jurisdictional and non-jurisdictional customers in Virginia, and the North Carolina jurisdiction—all "entities for which the Company has an obligation to provide generation service."[129] Customers' energy usage within jurisdictions is adjusted for energy loss differences that depend on their respective service voltages; such adjustments are necessary to calculate energy that must be produced at the generator to serve each jurisdiction. According to the Company, it is "appropriate to determine the amount of energy that needs to be produced to serve each jurisdiction, which is then used to allocate the CCR Project costs."[130]

The last step is cost allocation to customer classes within the Virginia jurisdiction. The Company interprets the statutory language of SB 1355 as a "policy determination that all customers should bear the costs to remove and either beneficiate or relocate the CCR material."[131] Therefore, the Company proposes a uniform kilowatt-hour "kWh" charge for retail choice customers and bundled service customers without further distinctions between classes,[132] in line with the fuel factor mechanism.

Q41. DOES STAFF SUPPORT THE COMPANY'S PROPOSED COST ALLOCATION METHODOLOGY?

A41. Yes, Staff supports the Company's cost allocation methodology and agrees with the Company's rationale. In addition, Staff found a relevant precedent in North Carolina, in which the North Carolina Utility Commission ("NCUC") found that "[i]t is reasonable and

[129] *Id.* at 5.
[130] *Id.* at 6.
[131] *Id.* at 7.
[132] *Id.* at 6.

appropriate to allocate all CCR expenditures by an energy allocation factor, rather than a demand-related production plant allocation factor."[133] The NCUC further explained that

> "CCR is a residual of the burning of coal in order to produce electricity. For every kWh of electricity that is produced by coal-fired generation, there are CCRs produced that must be properly handled and stored. Thus, the quantity of CCRs and the cost of storing them are energy driven. As a result, the Commission finds and concludes that the appropriate and reasonable course of action is to allocate the CCR costs by the energy allocation factor."[134]

Q42. ARE RETAIL CHOICE CUSTOMERS RESPONSIBLE FOR CCR MATERIAL REMEDIATION COSTS?

A42. Yes. Code § 10.1-1402.03 H (iv) states that "any such costs shall be allocated to all customers of the utility in the Commonwealth as a non-bypassable charge, irrespective of the generation supplier of any such customer."

Choice Customer activity did not materialize until 2015.[135] CCR material had started accumulating at the Power Stations decades earlier, when the Company still provided generation service to retail choice customers that have since switched to competitive service providers.[136] Further, the Bremo and Possum Point Power Stations and the Chesapeake Energy Center ceased coal operations before the end of 2014,[137] the Upper and Lower Ash Ponds at Chesterfield stopped accepting CCR in November 2017.[138]

Q43. PLEASE DISCUSS THE IMPACT OF THE COMPANY'S PROPOSED SURCHARGES ON CUSTOMERS' BILLS.

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[133] *In the Matter of Application by Duke Energy Progress, LLC, for Adjustment of Rates and Charges Applicable to Electric Utility Service in North Carolina* Nos. E-2, Sub 1131; E-2 Sub 1142; E-2 Sub 1103; E-2 Sub 1153 (Sept.-Nov. 2017), at 19. https://starw1 ncuc.net/NCUC/ViewFile.aspx?Id=d2b2a1a0-dae1-45de-af9c-c987d4aeddc8

[134] *Id.* at 221

[135] 2020 Rider E case, Direct Testimony of Staff witness Ruben S. Blevins, at 16 n.40. *See also* Attachment KK-44.

[136] Haynes Direct at 3-4.

[137] Company's informal e-mail response to Staff, June 16, 2021.

[138] 2020 Rider E case, Company's response to Staff Interrogatory No. 12-69. *See* Attachment KK-45.

A43. Typical bill impact comparisons for Residential Schedule 1, General Service Schedules GS-1, GS-2, GS-3 and GS-4 and Church Schedule 5C are shown in Schedule 4, pages 1 through 9, of Company witness Haynes's direct testimony. For a residential customer using 1,000 kWh per month, the Company's proposed Rider CCR charge would result in an increase of $2.94 per month.[139]

It should be noted that, as of June 1, 2021, the Company had several other rate adjustment clause proceedings pending before the Commission.[140] The total bill impact for a residential customer using 1,000 kWh that would result from all ten pending rate adjustment clauses is shown below:

June 1, 2021 Total Bill:				$ 117.85
Increase effective 7/1/2021	**Current**	**Proposed**	**Difference**	
Case No. PUR-2021-00097 - Rider A	$ 17.02	$ 20.45	$ 3.43	
Increase effective 8/1/2021				
Case No. PUR-2020-00170 - Rider RPS	$ -	$ 0.18	$ 0.18	
Case No. PUR-2020-00169 - Rider RGGI	$ -	$ 2.39	$ 2.39	
Case No. PUR-2020-00197 - Rider RBB	$ -	$ 0.03	$ 0.03	
Increase effective 9/1/2021				
Case No. PUR-2020-00274 - Rider C1A	$ 0.06	$ 0.03	$ (0.03)	
Case No. PUR-2020-00274 - Rider C2A	$ 0.18	$ 0.04	$ (0.14)	
Case No. PUR-2020-00274 - Rider C3A	$ 1.23	$ (0.18)	$ (1.41)	
Case No. PUR-2020-00274 - Rider C4A	$ -	$ 1.42	$ 1.42	
Case No. PUR-2020-00230 - Rider BW	$ 1.95	$ 2.10	$ 0.15	
Case No. PUR-2020-00231 - Rider US-2	$ 0.19	$ 0.18	$ (0.01)	
Case No. PUR-2021-00102 - Rider T1	$ 10.59	$ 6.90	$ (3.69)	
Increase effective 11/1/2021				
Case No. PUR-2021-00013 - Rider E	$ 1.67	$ 1.25	$ (0.42)	
Increase effective 12/1/2021				

[139] Supplemental Testimony of Paul B. Haynes, at 2-3. The bill increase has been amended to reflect the decrease in revenue requirement; the bill increase in the Petition is $2.95.
[140] Company's response to Staff Interrogatory No. 8-44. *See* Attachment KK-46.

Case No. PUR-2021-00045 - Rider CCR	$ -	$ 2.94	$ 2.94
Rider Increase Subtotal:	$ 32.89	$ 37.73	$ 4.84
		Total Bill:	$ 122.69

Q44. DOES THE STAFF HAVE ANY ADDITIONAL COMMENTS REGARDING THE RIDER CCR SURCHARGES PROPOSED IN THIS CASE?

A44. Yes. Should the Commission approve a revenue requirement that differs from the Company's requested revenue requirement, Staff recommends that the corresponding Rider CCR charges be adjusted consistent with the jurisdictional and class cost allocation methodology approved herein, and with the Company's proposed class rate design.

Q45. DOES THIS CONCLUDE YOUR TESTIMONY?

A45. Yes.